

REMARKS

Claims 1-27 are currently pending in the subject application and are presently under consideration. Claims 1-17, 19, 20, and 27 have been amended as shown on pp. 2-6 of the Reply. An interview was conducted on May 5, 2008. While the discussion generally related to all the claims, the focus of the discussion focused on independent claim 1 and proposed amendments. In particular, reference Bigus *et al.* (US 2004/0083454) was discussed in the interview. Amendments disclosed herein were presented to the Examiner. The interview was conducted with Ronald Krosky (Reg. No. 58,564), Asmita Chande, and Examiner Wei. The main focus of the interview was on deficiencies of the 103 and 112 rejections. No agreements were reached.

Favorable reconsideration of the subject patent application is respectfully requested in view of the comments and amendments herein.

I. Objection of Claims 8, 9, 15 and 19

Claims 8, 9, 15 and 19 are objected to because of the following informalities: With respect to claims 8 and 9, the term “facilitate” should be changed to “facilitates” and with respect to claims 15 and 19, acronym, like URI and XML in the claims, should be spelled out once in the claims, as their claimed intermediate meaning tend to change over the time. Claims 9 contains the term “facilitates” and thus it is requested that the object to claim 9 be withdrawn. Claims 8, 15, and 19 have been amended to correct the above informalities and accordingly, withdrawal of the objection is requested.

II. Rejection of Claims 2-17 and 19 Under 35 U.S.C §112

Claims 2-17 and 19 stand rejected under 35 U.S.C §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claims 2-6, 8-13, 17 and 19 depend from independent claim 1. Independent claim 1 has been amended to recite the limitation “one or more statements” and thus this rejection should be withdrawn. Further, claims 2-17 and 19 have been amended to recite “computer readable medium” and accordingly it is requested that this rejection be withdrawn.

III. **Rejection of Claims 1-15, 17-21 and 27 Under 35 U.S.C. §103(a)**

Claims 1-15, 17-21 and 27 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Bigus *et al.* (US 2004/0083454). It is respectfully submitted that this rejection is improper for at least the following reasons. Bigus *et al.* does not disclose or suggest each and every aspect set forth in the subject claim.

[T]he prior art reference (or references when combined) must teach or suggest all the claim limitations. See MPEP § 706.02(j). See also KSR Int'l Co. v. Teleflex, Inc., 550 U. S. ___, 04-1350, slip op. at 14 (2007). The teaching or suggestion to make the claimed combination and the reasonable expectation of success must be found in the prior art and not based on applicant's disclosure. See In re Vaeck, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991) (emphasis added).

Applicants' claimed subject matter relates to a rules definition language (RDL) that facilitates authoring rules for concurrent processing. In particular, a rule that includes statements, is broken down into one or more instructions, and these instructions are processed asynchronously to provide efficient use of computer resources and avoid overburdening of computer resources. Bigus *et al.* does not teach or suggest these novel aspects.

Bigus *et al.* relates to a rule-based programming language comprising a single rule language supporting a plurality of rulesets, an object-oriented framework that compiles the rulesets into a collection of framework objects and one or more pluggable inference engines for processing the collection of framework objects. Each framework object is a rule block comprising rules, wherein the ruleblock specifies an inference engine and each rule is a single declarative statement. (See page1, [0017]). ***Bigus et al. does not teach or suggest decomposition of this statement into instructions that are processed asynchronously in order to avoid overburdening of computer resources.*** In contrast, independent claim 1 of applicants' subject matter recites *composing a rule based on one or more statements, such that the rule is decomposed into a subset of instructions, the instructions are processed asynchronously to control utilization of computer resources.* Further, independent claim 1 also recites *the rule executed ... in an infinite loop with suitable timeouts to keep the rule from running all the time.* Bigus *et al.* does not teach or suggest infinite looping for running a rule continuously. On page 7 of the Office Action (dated February 6, 2008), with respect to dependent claim 4, the Examiner

asserts that Bigus *et al.* teaches infinite looping at paragraph [0046]. However, the cited paragraph merely teaches looping by employing a while and while do construct but does not teach or suggest an infinite loop. Similarly, independent claim 27 of applicants' subject matter recites *employing a rules definition language (RDL) to compose a rule of one or more statements that facilitate decomposing the rule into a subset of instructions that control utilization of computer resources by independent scheduling for out-of order execution, the logic of the rule representative of an infinite loop*. Specifically, a first rule authored in the RDL is passed into a translator component that decomposes the first rule in accordance with the RDL statements into a plurality of instructions. The RDL provides the capability such that the instructions are decomposed into a format that facilitates asynchronous processing thereof. Thus, the RDL provides a programming mechanism that facilitates more efficient asynchronous processing by the rules engine such that system resources are not overly burdened, as can occur in traditional systems that inefficiently capture system resources for processing rules sequentially. Furthermore, multiple rules can be authored in the RDL and, accommodated for translation and parallel processing. (See page 5, lines 28-31 to page 6, lines 1-8). Furthermore, RDL does not directly expose threads. Rather, everything is expressed as a Task and RDL maps threads to the various tasks that need execution, often using the same thread to execute several tasks simultaneously. Because RDL does not have threads, the logic in many rules can be safely expressed as infinite-loop constructs (See page 25, lines 3-6).

Independent claim 20, as amended, recites *composing a rule of one or more statements that facilitate decomposing the rule into a subset of instructions in accordance with the one or more statements, the instructions are processed at least one of asynchronously or out-of-order to improve utilization of computer resources, the rules processed to perform at least one of testing assertions, enforcing constraints using runtime information, making inferences, performing correlation, or communicating results of dynamic tests to other components, the rule associated with a rule type is defined by RDL (rules definition language) code the while a separate XML document is employed to create instances of the rule type by specifying the parameter values necessary for its instantiation; mapping at least one thread to one or more tasks for execution and employing the at least one thread to execute several tasks concurrently; providing primitives for automatically correlating asynchronous observations from a plurality of sources to eliminate the need to write multithreading code; and determining one or more models that are utilized for*

a given instance or implementation by employing an artificial intelligence scheme. In particular, applicants claimed subject matter relates to a rules definition language (RDL) that includes statements that facilitate efficient use of computer resources by allowing a rule to be broken down into one or more instructions, and processing these instructions asynchronously to provide more efficient use of the computer resources (*See* page 2, lines 12-15). The Examiner indicates on page 6 of the Office Action (dated February 6, 2008) that the rules disclosed by Bigus *et al.* are processed sequentially or selected to fire. However, the cited reference does not teach or suggest the instructions associated with a rule that are processed sequentially or selected to fire in order to efficiently utilize computer resources. Further, applicants disclosed method defines a rule type (*i.e.*, class) while a separate XML (eXtensible Markup Language) document is used to create instances of the rule type by specifying the parameter values necessary for its instantiation (*See* page 70, lines 21-23). Bigus *et al.* does not teach or suggest this novel aspect. Furthermore, the RDL does not directly expose threads. Rather, everything is expressed as a Task and the RDL maps threads to the various tasks that need execution, often using the same thread to execute several tasks simultaneously (*See* page 25, lines 3-5). Bigus *et al.* is silent with respect to this aspect. Additionally, applicants subject matter teaches that many rules execute based on external events, and many execute at polling intervals. The total number of rules is very large and rule execution is prioritized and scheduled. Some rules are polled, and some rules execute based on external events. Many rules also require correlation with each other. The disclosed method provides primitives for automatically correlating asynchronous observations from different sources, eliminating the need to write sophisticated and synchronized multithreading code (*See* page 21, lines 7-13). Bigus *et al.* does not disclose automatic correlation of asynchronous observations from different sources. Furthermore, Bigus *et al.* is silent with respect to automatically determining models that are utilized for a given instance or implementation. In contrast, applicants' subject model-based system can employ various artificial intelligence based schemes for carrying out various aspects thereof. For example, with respect to models, a process for determining what models can be utilized for a given instance or implementation can be facilitated *via* an automatic classification system and process (*See* page 57, lines 22-25).

In view of at least the foregoing, it is readily apparent that Bigus *et al.* merely teaches a method to execute each rule as a whole and fails to disclose a method to facilitate out-of-order

execution of instructions obtained by decomposing a rule to efficiently employ computer resources. Furthermore, Bigus *et al.* does not teach infinite looping and does not anticipate or suggest the subject invention as recited in claims 1, 20 and 27 (and claims 2-15, 17-19, 21 and 27 that depend there from). Therefore, it is respectfully requested that this rejection be withdrawn.

IV. Rejection of Claims 16, 22-26 Under 35 U.S.C. §103(a)

Claims 16, 22-26 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Bigus *et al.* (US 2004/0083454) in view of Graf (US 6212581). It is respectfully submitted that this rejection is improper for at least the following reasons. Bigus *et al.* either alone or in combination with Graf, does not teach or suggest every feature of the subject claims.

Claims 16 and 22-26 depend on independent claims 1 and 20. Applicants' claimed subject matter relates to a rules definition language that authors a rule by decomposing it into a plurality of instructions, which are executed asynchronously to avoid over burdening of system resources. As discussed above, Bigus *et al.* does not disclose or suggest each and every aspect of independent claims 1 and 20. In particular, Bigus *et al.* fails to recite the asynchronous processing of instructions that are obtained by decomposition of a rule and the concurrent processing of rules and/or infinite looping. Graf relates to a system and method for automatically managing a group of computers by automatically gathering data, storing the data, analyzing the stored data to identify specified conditions and initiate automated actions to respond to the detected conditions but fails to cure the aforementioned deficiencies of Bigus *et al.* with respect to independent claims 1 and 20.

Bigus *et al.* alone or in combination with Graf fails to teach or suggest all features of applicants' specification as recited in independent claims 1 and 20 (and claims 16 and 22-26 that depend therefrom), and thus fails to make obvious the claimed invention. Accordingly, it is respectfully requested that this rejection be withdrawn.

CONCLUSION

The present application is believed to be in condition for allowance in view of the above comments and amendments. A prompt action to such end is earnestly solicited.

In the event any fees are due in connection with this document, the Commissioner is authorized to charge those fees to Deposit Account No. 50-1063 [MSFTP520US].

Should the Examiner believe a telephone interview would be helpful to expedite favorable prosecution, the Examiner is invited to contact applicants' undersigned representative at the telephone number below.

Respectfully submitted,

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